IN THE SPECIFICATION:

Please delete the subheading at page 5, line 16 and replace with the following subheading:

DETAILED DESCRIPTION OF EXEMPLARY EMBODIMENTS

Please amend the paragraph at page 6, line 1 as follows:

The black bars B1 to B5 and the white bars W1 to W4 have ~~width~~ widths in multiples of a basic width f0. The width of the black bar B1 is twice the basic width and the width of the white bar W1 is equal to the basic width. The width of the black bar B2 is equal to the basic width and the width of the white bar W2 is four times the basic width. The width of the black bar B3 is three times the basic width and the width of the white bar W3 is equal to the basic width. The width of the black W4 is twice the basic width.

Please amend the paragraph at page 6, line 16 as follows:

Therefore, when an optical power of reflected light is acquired by irradiating light ~~like~~ such as a laser beam, etc., on the bar code, a waveform 2 of the optical power of the reflected light includes the extra thickness of the black bar (see (b) in Fig. 1). Concretely, in the waveform 2 of the optical power of the reflected light, a low signal is generated when the laser beam is irradiated on the black bar and a high signal is generated when the laser beam is irradiated on the white bar. In the waveform 2 of the optical power of the reflected light, the width of a low signal increases and

the width of a high signal decreases.

Please amend the paragraph at page 7, line 6 as follows:

Thus, due to a shift in the timing of occurrence of the boundaries n1 to n5 and p1 to p4, the basic width of the bar code cannot be calculated accurately. Moreover, even if the width of the bar code is calculated, when an amplitude of a differential waveform is acquired based on the basic width, the amplitude of the shifted position is acquired as the amplitude of the peak of the differential waveform. In other words, there is an error in reading the amplitude of the peak.

Please amend the paragraph at page 8, line 14 as follows:

In other words, by dividing the differential waveform into a positive waveform and a negative waveform, the thick black bar is attributed to a start-up timing of amplitude acquisition rather than to the shift in the basic width.

Please amend the paragraph at page 8, line 18 as follows:

A configuration of a bar-code reader according to an embodiment of the present invention is described with reference to Fig. 2. In a bar-code reader, timing signals are generated separately for the positive differential waveform and the negative differential waveform respectively and the amplitudes of the positive differential waveform and the negative differential waveform are acquired based on the respective timing signals. Then, the amplitudes of the positive differential

signal and the negative differential signal are synthesized.

Please amend the paragraph at page 10, line 10 as follows:

However, for reading the bar code, ~~width~~ the widths of black bars and white bars is useful information. The ~~width~~ widths of black bars and white bars is in multiples of the basic width. Therefore, the required information is indicated by a frequency that is less than the frequency of the basic width. The frequency greater than that of the basic width can be assumed to be noise that is unnecessary for reading of the bar code.

Please amend the paragraph at page 10, line 22 as follows:

In the band-limiting differential processor 22, a basic-width calculation 31 differentiates the extracted optical power of the reflected light and divides it into a positive and a negative (sign division 33). The frequency of the basic width is calculated from the positive differential waveform and the negative differential waveform by an FFT (fast Fourier transform) 34. Irrespective of the presence or absence of a thick black bar, the positive differential waveform and the negative differential waveform are separated by a distance that is in multiples of the basic width. Therefore, the bandwidth can be calculated from the frequency element obtained by the FFT 34.